

METHOD AND APPARATUS FOR WIRELESS COMMUNICATIONS

ABSTRACT OF THE DISCLOSURE

A communication system (20) uses TDMA techniques to distinguish intended recipients of a communication signal (26) from one another, and direct sequence spread spectrum (DSSS) techniques to encode and distinguish diverse parallel substreams (70, 74) of each user's data stream. Parallel unspread substreams (70) are spread using cyclic variations of a common spreading code (38). In one embodiment, the common spreading code (38) is chosen for low aperiodic autocorrelation sidelobes and a substantially flat spectral analysis. In another embodiment the common spreading code (38) is chosen for low periodic autocorrelation sidelobes and a substantially flat spectral analysis. In one embodiment, the use of cyclic variations of the spreading code (38) along with a cyclic prefix (114) enables the mathematical communicative matrix multiplication property, thereby permitting equalization for multipath to occur following or in conjunction with despreading.

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